



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,889	11/12/2003	Hiroaki Takano	03677 /LH	9866
1933	7590	06/06/2007	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC			DURNFORD GESZVAIN, DILLON	
220 Fifth Avenue			ART UNIT	PAPER NUMBER
16TH Floor			2622	
NEW YORK, NY 10001-7708			MAIL DATE	DELIVERY MODE
			06/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/712,889	TAKANO ET AL.	
	Examiner	Art Unit	
	Dillon Durnford-Geszvain	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 12 November 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-46 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 12 November 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 45 and 46 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 45 defines a computer program embodying functional descriptive material. However, the claim does

not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed computer program can range from paper on which the program is written, to a program simply contemplated and memorized by a person.

Claim 46 defines a recording medium embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed recording medium can range from paper on which the program is written, to a program simply contemplated and memorized by a person.

Claim 45 should be cancelled and the preamble of claim 46 should be changed to indicate that the computer program is encoded on a computer readable medium. Note that the computer readable medium cannot be a carrier wave, DNA or some other type of non-statutory medium.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

~~27 - 28~~

4. Claims 1-15, 18-26 and 31-46 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pre-Grant Publication 2003/0189650 (Gindele et al.).

As to claim 1, Gindele et al. teaches an apparatus for capturing an image, comprising: a scene-referred raw data generating section 12 (see Fig. 1) to generate scene-referred raw data, which directly represent said image while depending on image-capturing characteristics of said apparatus; a reproduction-auxiliary data generating section 22 to generate reproduction-auxiliary data, based on which an image-capturing characteristic compensation processing is to be applied to said scene-referred raw data generated by said scene-referred raw data generating section, so as to generate scene-referred image data in a standardized format from said scene-referred raw data ([0030]); a designating section 32 to designate a degree of white-balance adjustment; and a storage controlling section 20 to attach said reproduction-auxiliary data and white-balance data indicating said degree of said white-balance adjustment to said scene-referred raw data in order to store all of them into a storage

Art Unit: 2622

medium ([0050]).

As to claim 2, see the rejection of claim 1 and note that Gindele et al. further teaches the apparatus of claim 1, further comprising: an image-capturing data generating section 20 to generate image-capturing data, which represent image-capturing conditions established at a time of capturing said image; wherein said storage controlling section attaches said reproduction-auxiliary data, said white-balance data and said image-capturing data to said scene-referred raw data in order to store all of them into said storage medium ([0050]).

As to claim 3, see the rejection of claim 1 and note that Gindele et al. further teaches the apparatus of claim 1, wherein said image-capturing data includes a photographing EV value established at a time of capturing said image ([0050]).

As to claim 4, Gindele et al. teaches an apparatus for processing data, comprising: a receiving section (the photofinishing system referred to in [0049]) to receive scene-referred raw data, which directly represent an image captured by an image-capturing apparatus while depending on image-capturing characteristics of said image-capturing apparatus, and to receive reproduction-auxiliary data in respect to said scene-referred raw data, and to receive white-balance data indicating a degree of white-balance adjustment ([0050]); a scene-referred image data generating section to generate scene-referred image data from said scene-referred raw data received by said

receiving section, based on said reproduction-auxiliary data received by said receiving section, by applying an image-capturing characteristic compensation processing to said scene-referred raw data ([0050]); and an output data generating section to generate output data by attaching said white-balance data to said scene-referred image data ([0051]).

As to claim 5, see the rejection of claim 4 and note that Gindele et al. further teaches the apparatus of claim 4, wherein said scene-referred image data are generated in a standardized format from said scene-referred raw data ([0049]).

As to claim 6, see the rejection of claim 4 and note that Gindele et al. further teaches the apparatus of claim 4, wherein said receiving section also receives image-capturing data, which represent image-capturing conditions established at a time of capturing said image; and wherein said output data generating section generates said output data by attaching said white-balance data and said image-capturing data to said scene-referred image data ([0050]).

As to claim 7, see the rejection of claim 5 and note that Gindele et al. further teaches the apparatus of claim 5, further comprising: an output-referred image data generating section to generate output-referred image data, based on which a reproduced image is formed on an outputting medium, by applying an image-processing for optimizing said reproduced image to said scene-referred image data generated by

Art Unit: 2622

said scene-referred image data generating section; wherein contents of said image-processing are determined on the basis of said white-balance data received by said receiving section ([0049] and note that the images are processed and then printed, i.e. formed on an outputting medium).

As to claim 8, see the rejection of claim 6 and note that Gindele et al. further teaches the apparatus of claim 6, further comprising: an output-referred image data generating section to generate output-referred image data, based on which a reproduced image is formed on an outputting medium, by applying an image-processing for optimizing said reproduced image to said scene-referred image data generated by said scene-referred image data generating section; wherein contents of said image-processing are determined on the basis of said white-balance data and said image-capturing data, both received by said receiving section ([0049] and [0050]).

As to claim 9, see the rejection of claim 4 and note that Gindele et al. further teaches the apparatus of claim 4, wherein said receiving section receives a photographing EV value established at a time of capturing said image ([0050]).

As to claim 10, see the rejection of claim 7 and note that Gindele et al. further teaches the apparatus of claim 7, further comprising: an applying amount determining section to determine an applying amount of said white-balance adjustment to be applied to said scene-referred image data, based on said white-balance data indicating said

degree of said white-balance adjustment; wherein said output-referred image data generating section includes: a white-balance adjusting section to apply said applying amount of said white-balance adjustment, determined by said applying amount determining section, to said scene-referred image data ([0050]).

As to claim 11, see the rejection of claim 10 and note that Gindele et al. further teaches the apparatus of claim 10, wherein said white-balance adjusting section is provided with an image area dividing function for dividing a whole image area of said scene-referred image data into a plurality of small image areas ([0032]).

As to claim 12, see the rejection of claim 11 and note that Gindele et al. further teaches the apparatus of claim 11, wherein said white-balance adjusting section is further provided with a ratio calculating function for calculating a R/G ratio and a B/G ratio for a respective one of said plurality of small image areas, divided by said image area dividing function; and wherein said R/G ratio represents a ratio between an integrated value of R (Red) signals and another integrated value of G (Green) signals within each of said plurality of small image areas, while said B/G ratio represents a ratio between an integrated value of B (Blue) signals and another integrated value of G (Green) signals within each of said plurality of small image areas ([0006]).

As to claim 13, see the rejection of claim 12 and note that Gindele et al. further teaches the apparatus of claim 12, wherein said white-balance adjusting section is

further provided with a light-source estimating function for estimating a kind of a photographic light source for a respective one of said plurality of small image areas, by plotting said R/G ratio and said B/G ratio, calculated by said ratio calculating function, onto a light-source estimating map in which light-source area frames, indicating ranges of various combinations of said R/G ratio and said B/G ratio corresponding to various kinds of light-sources ([0006]).

As to claim 14, see the rejection of claim 13 and note that Gindele et al. further teaches the apparatus of claim 13, wherein said white-balance adjusting section is further provided with a light-source determining function for determining a kind of a photographic light source under which said scene-referred image data are acquired by employing a number of small image areas plotted within one of said light-source area frames, or a membership function in which a photographic EV value is a variable ([0044]).

As to claim 15, see the rejection of claim 11 and note that Gindele et al. further teaches the apparatus of claim 11, wherein said white-balance adjusting section is further provided with a color-temperature estimating function for estimating a color temperature of a photographic light source for a respective one of said plurality of small image areas by employing a least squares method ([0046]).

As to claim 18, see the rejection of claim 10 and note that Gindele et al. further

teaches the apparatus of claim 10, wherein said applying amount determining section can arbitrarily establish a relationship between said white-balance data, indicating said degree of said white-balance adjustment, and an applying amount of said white-balance adjustment to be applied in practice ([0054] and note that the applying amount is arbitrarily changed to zero if white balance has already been carried out).

As to claim 19, Gindele et al. teaches an apparatus for outputting a reproduced image onto an outputting medium, comprising: a receiving section (the photofinishing system referred to in [0049]) to receive scene-referred raw data, which directly represent an image captured by an image-capturing apparatus while depending on image-capturing characteristics of said image-capturing apparatus, and to receive reproduction-auxiliary data in respect to said scene-referred raw data, and to receive white-balance data indicating a degree of white-balance adjustment ([0050]); a scene-referred image data generating section to generate scene-referred image data from said scene-referred raw data received by said receiving section, based on said reproduction-auxiliary data received by said receiving section, by applying an image-capturing characteristic compensation processing to said scene-referred raw data ([0050]); an output-referred image data generating section to generate output-referred image data, based on which a reproduced image is formed on an outputting medium, by applying an image-processing for optimizing an image quality of said reproduced image to said scene-referred image data generated by said scene-referred image data generating section ([0051]); and an image-forming section to form said reproduced image on said

outputting medium, based on said output-referred image data ([0049], note that the images are printed); wherein contents of said image-processing for optimizing said image quality of said reproduced image are determined on the basis of said white-balance data indicating said degree of white-balance adjustment ([0050]).

As to claim 20, see the rejection of claim 19 and note that Gindele et al. further teaches the apparatus of claim 19, wherein said scene-referred image data are generated in a standardized format from said scene-referred raw data ([0049] note that the images are printed).

As to claim 21, see the rejection of claim 19 and note that Gindele et al. further teaches the apparatus of claim 19, wherein said receiving section also receives image-capturing data, which represent image-capturing conditions established at a time of capturing said image ([0050]).

As to claim 22, see the rejection of claim 19 and note that Gindele et al. further teaches the apparatus of claim 19, wherein said receiving section receives a photographing EV value established at a time of capturing said image ([0050]).

As to claim 23, see the rejection of claim 19 and note that Gindele et al. further teaches the apparatus of claim 19, further comprising: an applying amount determining section to determine an applying amount of said white-balance adjustment to be applied

to said scene-referred image data, based on said white-balance data indicating said degree of said white-balance adjustment; wherein said output-referred image data generating section includes: a white-balance adjusting section to apply said applying amount of said white-balance adjustment, determined by said applying amount determining section, to said scene-referred image data ([0050]).

As to claim 24, see the rejection of claim 23 and note that Gindele et al. further teaches the apparatus of claim 23, wherein said white-balance adjusting section is provided with an image area dividing function for dividing a whole image area of said scene-referred image data into a plurality of small image areas ([0032]).

As to claim 25, see the rejection of claim 24 and note that Gindele et al. further teaches the apparatus of claim 24, wherein said white-balance adjusting section is further provided with a ratio calculating function for calculating a R/G ratio and a B/G ratio for a respective one of said plurality of small image areas, divided by said image area dividing function; and wherein said R/G ratio represents a ratio between an integrated value of R (Red) signals and another integrated value of G (Green) signals within each of said plurality of small image areas, while said B/G ratio represents a ratio between an integrated value of B (Blue) signals and another integrated value of G (Green) signals within each of said plurality of small image areas ([0006]).

As to claim 26, see the rejection of claim 25 and note that Gindele et al. further

teaches the apparatus of claim 25, wherein said white-balance adjusting section is further provided with a light-source estimating function for estimating a kind of a photographic light source for a respective one of said plurality of small image areas, by plotting said R/G ratio and said B/G ratio, calculated by said ratio calculating function, onto a light-source estimating map in which light-source area frames, indicating ranges of various combinations of said R/G ratio and said B/G ratio corresponding to various kinds of light-sources ([0006]).

As to claim 27, see the rejection of claim 26 and note that Gindele et al. further teaches the apparatus of claim 26, wherein said white-balance adjusting section is further provided with a light-source determining function for determining a kind of a photographic light source under which said scene-referred image data are acquired by employing a number of small image areas plotted within one of said light-source area frames, or a membership function in which a photographic EV value is a variable ([0044]).

As to claim 28, see the rejection of claim 24 and note that Gindele et al. further teaches the apparatus of claim 24, wherein said white-balance adjusting section is further provided with a color-temperature estimating function for estimating a color temperature of a photographic light source for a respective one of said plurality of small image areas by employing a least squares method ([0046]).

As to claim 31, see the rejection of claim 23 and note that Gindele et al. further teaches the apparatus of claim 23, wherein said applying amount determining section can arbitrarily establish a relationship between said white-balance data, indicating said degree of said white-balance adjustment, and an applying amount of said white-balance adjustment to be applied in practice ([0054] and note that the applying amount is arbitrarily changed to zero if white balance has already been carried out).

Claims 32, 33 and 35-44 are method claims that correspond to the apparatus of claims 19, 20, 23-31 and 22 respectively and are therefore rejected on the same grounds as the apparatus claims but drawn to a method.

As to claim 34, see the rejection of claim 32 and note that Gindele et al. further teaches the method of claim 32, wherein said contents of said image-processing for optimizing said image quality of said reproduced image are determined on the basis of said white-balance data indicating said degree of white-balance adjustment and image-capturing data representing image-capturing conditions established at a time of capturing said image ([0050]).

Claims 45 and 46 are program claims that correspond to the method of claim 32 and are therefore rejected on the same grounds as claim 32 but drawn to a computer program.

Note that the above rejection is made in light of the rejection of the claims under

Art Unit: 2622

35 USC 101.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 16, 17, 29, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pre-Grant Publication 2003/0189650 (Gindele et al.) in view of US Pre-Grant Publication 2003/0052978 (Kehtarnavaz et al.)

As to claim 16, see the rejection of claim 15 and note that what Gindele et al. does not teach is creating a histogram based on emerging frequency of color temperature of light sources in respective small areas. However, Kehtarnavaz et al. teaches creating a histogram based on the frequencies of color temperatures in small areas ([0043]). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have created a histogram for determining the true color temperature of a scene as is done in Kehtarnavaz et al. as this would allow for accurate white balance correction in a scene having an average color that is not grey.

As to claim 17, see the rejection of claim 16 and note that Kehtarnavaz et al. further teaches that the white-balance adjusting section is further provided with a group-wise white-balance adjusting function for dividing said whole image area of said scene-

referred image data into plural groups, based on said histogram created by said histogram creating function, so as to apply a different white-balance adjustment to a respective one of said plural groups, said different white-balance adjustment is one of various white-balance adjustments being different relative to each other corresponding to a respective one of said plural groups ([0043]).

As to claim 29, see the rejection of claim 28 and note that what Gindele et al. does not teach is creating a histogram based on emerging frequency of color temperature of light sources in respective small areas. However, Kehtarnavaz et al. teaches creating a histogram based on the frequencies of color temperatures in small areas ([0043]). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have created a histogram for determining the true color temperature of a scene as is done in Kehtarnavaz et al. as this would allow for accurate white balance correction in a scene having an average color that is not grey.

As to claim 30, see the rejection of claim 29 and note that Kehtarnavaz et al. further teaches that the white-balance adjusting section is further provided with a group-wise white-balance adjusting function for dividing said whole image area of said scene-referred image data into plural groups, based on said histogram created by said histogram creating function, so as to apply a different white-balance adjustment to a respective one of said plural groups, said different white-balance adjustment is one of various white-balance adjustments being different relative to each other corresponding

to a respective one of said plural groups ([0043]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dillon Durnford-Geszvain whose telephone number is (571) 272-2829. The examiner can normally be reached on Monday through Friday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dillon Durnford-Geszvain

5/28/2007



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER